

ETHNOZOOLOGICAL CLASSIFICATION AND CLASSIFICATORY LANGUAGE AMONG THE NAGE OF EASTERN INDONESIA

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ABSTRACT.—Categories of natural kinds recognized by the Nage people of the eastern Indonesian island of Flores admit both taxonomic and nontaxonomic forms of classification. The latter consist of two modes of lexical pairing associated respectively with mundane discourse and the formal idiom of ceremonial speech. Within Nage ethnozoological nomenclature, taxonomic relations are most thoroughly exemplified by their classification of snakes (*nipa*). In distinguishing taxonomic from other forms of classification, relations of class inclusion are considered with regard to ways in which the Nage language might identify something as a “kind of” another thing. In this connection, taxonomy (in some contexts associated with polysemous nomenclature) is distinguished from “encompassment,” an implicitly polysemous relationship which pertains to resemblance rather than inclusion. The paper thus initiates a discussion of ways in which ethnobiological classification articulates with forms of dualistic symbolic classification so prevalent in eastern Indonesia, and of how the classification of natural kinds compares with the conceptual ordering of other entities, including spiritual beings.

RESUMEN.—Las categorías de clases naturales reconocidas por el pueblo Nage de la isla de Flores en Indonesia oriental admiten formas de clasificación tanto taxonómicas como no taxonómicas. Estas últimas consisten de dos modos de apareamiento léxico asociados respectivamente con el discurso mundano y las expresiones formales del lenguaje ceremonial. Dentro de la nomenclatura etnozoológica Nage, las relaciones taxonómicas son ejemplificadas en forma más completa por su clasificación de las víboras (*nipa*). Al distinguir las formas taxonómicas de otras formas de clasificación, las relaciones de inclusión de clase se consideran en relación a las formas como la lengua Nage puede identificar a algo como una “clase de” otra cosa. A este respecto, la taxonomía (asociada en algunos contextos con la nomenclatura polisémica) es distinguida del abarcamiento (“encompassment”), una relación implícitamente polisémica que tiene que ver con la semejanza más que con la inclusión. El trabajo inicia así una discusión de las maneras en que la clasificación etnobiológica se articula con las formas de clasificación simbólica dualística, tan común en Indonesia oriental, y sobre la manera en que la clasificación de clases naturales se compara con el ordenamiento conceptual e otras entidades, incluyendo los seres espirituales.

RÉSUMÉ.—Les catégories d'espèces naturelles reconnues par le peuple Nage de l'île de Flores dans l'Indonésie orientale comprennent les deux formes de classi-

fication: taxonomique et non-taxonomique. Celle-ci consiste en deux formes d'accouplement lexicale, associées respectivement au discours vulgaire et à l'idiome formel du langage cérémonial. Dans la nomenclature éthnozoologique, les relations taxonomiques sont mieux démontrées avec la classification des serpents (*nipa*). La distinction entre la classification taxonomique et autres formes de classification rends possible le concept de classes d'inclusion, d'après lesquelles, dans la langue Nage, il est possible d'identifier quelque chose comme étant "une espèce" de quelque chose d'autre. En établissant cette relation, la taxonomie (dans des contextes associés avec la nomenclature polysémique) se différencie de 'groupement', celui-ci constituant une relation polysémique qui est d'avantage liée à la ressemblance qu'à l'inclusion. Cet article engage donc une discussion sur les formes par lesquelles la classification éthnozoologique s'articule avec des formes de classification symbolique dualistes, très commune dans l'Indonésie. Nous faisons également la comparaison entre la classification des espèces naturelles et l'organisation d'autres identités, y compris les êtres spirituels.

In this paper I describe features of the classification of biological species among the Nage of eastern Indonesia. My focus is on their classification of snakes. One objective is to demonstrate the existence, in limited areas of Nage ethnozoology, of conceptual relations corresponding more closely to the model of scientific taxonomy than is usual in folk classification. Another is to discuss ways class inclusion is expressed in Nage. Using the Nage case as an illustration, I suggest that ethnobiologists could benefit from more attention to features of language in deciding issues such as whether folk classifications correspond to the taxonomic model of scientific biology, and the grounds on which these issues may be decided. More specifically, I argue that while relations that constitute a taxonomy may not be directly or unequivocally expressible in local languages, taxonomic order can be discerned in patterns of naming. While taxonomy need not be a fully conscious or explicit method of connecting biological categories, in the Nage case neither is it something imposed on the data by the western observer (cf. Berlin 1992, addressing critics Gardner 1976, Hunn 1976, Ellen 1986 and others). At the same time, ethnobiological classification, particularly insofar as it corresponds to scientific taxonomy, is to be distinguished from other instances of Nage classification involving biological categories. Of particular interest here are forms of lexical pairing. By comparing ethnobiological classification with other ways in which its component categories are connected conceptually and linguistically, I initiate a discussion of ways in which the former relates to patterns of dualistic symbolic classification so prevalent in eastern Indonesia.

THE NAGE AND THEIR CLASSIFICATION OF LIVING THINGS

The Nage are a group of some 50,000 cultivators who speak an Austronesian, and more specifically Central-Malayo-Polynesian, language. They reside to the north and west of the large, active Ebu Lobo volcano in the central part of the eastern Indonesian island of Flores. Nage are an interior people, living mostly from dry field horticulture and stock raising supplemented by limited hunting and fishing. However, irrigated rice cultivation has been practiced in selected areas since the 1930s. While Nage territory includes areas of primary and secondary forest, savannah, and riverine environments, their familiarity with coastal

and marine biota is limited. Ethnobiological fieldwork has mostly been conducted in the western part of the Nage region, in the vicinity of the main Nage village of Bo'a Wae. All indigenous terms given below are from the Bo'a Wae dialect. Apart from publications by the author, very little has been published on the Nage, and a dictionary or word list of the Nage language has yet to appear.

These notes are offered as an introduction to selected areas of Nage ethnozoology. Not only are my own ethnographic researches still in progress, but a specifically ethnobiological study of the region, involving extensive and directed interviewing and systematic use of live or preserved specimens, has yet to be conducted. Information on zoological kinds derives mostly from investigations of local religion, ritual, and cosmology, including especially Nage representations of spiritual beings. In identifying species I have relied on opportunistic observation of local animals and plants, supplemented by informants' descriptions, data contained in zoological publications, and ethnobiological studies concerning related languages and peoples of western Flores (see Table 1). My knowledge of animal kinds was partly gained from open-ended conversations with numerous interlocutors, and partly from directed questioning of a dozen regular informants ranging in age between 30 and 60. All but one were men. Like the great majority of Nage nowadays, all informants had some formal education, though only three had more than six years of schooling. It was not possible to employ photographs or other illustrations in identifying zoological (and particularly herpetological) species because none of sufficient quality was available at the time of my fieldwork.

Despite these limitations, several general features of ethnobiological nomenclature are firmly established. Like most languages, Nage has no word that corresponds to *plant*, though there are general terms for *tree* (*lo kaju*), *grass* (*ku*), and *vines* (*koba tali* or *tali koba*).¹ On the other hand, Nage do have a word comparable to English *animal*. This is *ana wa*, a term which can be understood to mean "children, people (*ana*) of the wind (*wa*)."² Although *ana wa* corresponds mostly to the folk sense of English *animal* (cf. Indonesian *binatang*), it also resembles the scientific sense of the English word insofar as it includes birds, reptiles, insects, and fish as well as mammals. In fact, Nage often specified *ana wa* as a reference to all living things that moved. By either comparison, Nage would appear to be unusual in marking this most inclusive of biological taxa—a *kingdom* or *unique beginner* in Berlin's terminology—since in most languages, *animal*, like *plant*, exists only as a covert category (Berlin et al. 1973; Berlin 1992:15, 17).

According to a local interpretation, animals are called *ana wa* because like the wind (*wa*), their behaviour, in contrast to that of human beings, is unconstrained and unpredictable (see Forth 1989:93). In the first instance, the term denotes larger, four-legged animals rather than, for example, birds and snakes, and is applied more often to domestic mammals than to wild species. In other words, large mammals, especially domesticated ones, are the prototype or focus—the "best example" in the language of fuzzy sets—of the category *ana wa*. Yet while some Nage expressed reservations about including fish (*ika*) and snakes (*nipa*) among the *ana wa*, the general consensus was that creatures other than mammals were also correctly placed under this rubric.² There was complete agreement, even among educated Nage, that human beings (*kita ata*) were not *ana wa*. Small children are regularly spoken of as *ana wa*, especially with reference to their lack

of knowledge and social skills. As one man put it, children are "like animals because they do not (yet) know anything." Further questioning, however, established that this identification of children as "animals" is metaphorical, and that Nage do not regard their offspring as *ana wa* in the same way they regard their horses, for example, as belonging to this class.

The existence of *animal* as a discrete taxon is further attested by the application of the numeral classifier *éko* (tail) to all living things that would be counted as animals even in the extended definition of the English folk category. Thus one says *emu sa éko*, "one mosquito;" *pake éko dhua*, "two frogs;" *goka éko telu*, "three pythons;" *feni éko wutu*, "four parrots;" and *bhada éko lima*, "five water buffalo." Humans, by contrast, including even the smallest—and least socialized—of children are counted with *ga'e*, e.g. *ana ga'e lima*, five children, while plants and inanimate objects take separate classifiers.

The majority of Nage terms for members of the class of *animals* are terminal taxa denoting basic kinds that do not belong to any intervening named category. These basic kinds—or *folk generics* in Berlin's terminology—mostly correspond to biological species. The palm civet (*bheku*) and giant Flores rat (*bétu*, *Papagomys armandvillei*), for example, are *ana wa* (animals), and nothing more. In a minority of instances, below *ana wa* one encounters named taxa further divided into two or more kinds (or varieties). Thus subordinate to *metu*, "ant, red ant," are *metu ladhe* (a light red ant), *metu ma'u* (coast ant, a dark red kind), and others, while *hale*, "flies," includes *hale éno* (small fly, the common housefly), *hale mite* (black fly, a bluebottle), *hale ja* (horse fly), and *hale bhada* (buffalo fly). In some instances, the superordinate taxon is identically named at the subordinate level. *Jata*, for example, includes *jata* (occasionally specified as *jata ulu bha*, white-headed *jata*), the Brahminy kite (*Haliastur indus*), and *jata jawa*, designating one or more large raptors of the genus *Accipiter*. Other Nage examples of this widespread pattern of folk biological nomenclature are discussed below.

The only named taxa designating a level intermediate between *animal* and basic kinds, and thus corresponding to *life-forms* (see Brown 1977, 1979), are *nipa*, "snakes," and *ika*, "fish." The Nage classification thus appears consistent with Brown's thesis (1979:792) that if a language contains between one and three life-form terms, these will be one, or some combination, of *fish*, *snake*, or *bird*. Nage possesses no monolexemic taxa corresponding to *bird*, *mammal*, or *insect* (cf. Brown's neologism *wug*, *ibid.*:793). Nor is there an equivalent of *reptile*, since, unlike snakes, various kinds of lizards and turtles are each named with folk generics included immediately under *ana wa* (animal). At the same time, the Nage language includes numerous expressions comprising two juxtaposed terms denoting basic kinds that refer to a more comprehensive group of animals. An example is *peti kolo*. This consists of *peti*, a term applied to several species of Munia (*Lonchura*) and other small passerine birds that are more completely known as *ana peti*, and *kolo*, the name of one or more species of small doves (including *Streptopelia* and *Geopelia*). When thus conjoined, the terms refer not just to doves and Munias but to a variety of relatively small birds. (As regards plants, pairing is exemplified by the phrase *bheto pezi*, conjoining the names of two varieties of bamboo and serving as a term for bamboo in general, which includes three other named varieties and for which there is no single lexeme.)

There are nevertheless strong indications that such juxtapositions do not label intermediate taxa, or form part of any systematic taxonomy. In contrast to a taxon like *nipa* (snakes), the class of birds designated as *peti kolo* is highly indeterminate, both in regard to contextual variability and insofar as informants disagree as to which birds it should include. Also noteworthy is the circumstance that some birds classified as *peti*, or *ana peti* (itself a variably defined grouping), are not referred to as *peti kolo*. Pertinent here is the functional or utilitarian character of the latter category, which primarily refers to birds that damage cereal crops; and not all birds classified as *ana peti* are crop pests. On the other hand, there are birds that regularly consume crops, such as crows and cockatoos, which Nage reject as instances of *peti kolo*. In fact, while observed use of the term reveals a more inclusive reference, Nage often deny that the pairing refers to anything other than the two sorts of birds explicitly named. Put another way, *peti kolo*, and other formally identical expressions to be discussed below, are (as one informant explicitly noted) collective designations subsuming neither subcategories nor individual members. In no case, therefore, can the referent be enumerated, or modified with a numeral classifier, so that whereas one can speak of "one snake" (*nipa sa éko*), one cannot speak of one (or two or more) *peti kolo*.

The nontaxonomic status of such expressions is further apparent from the existence of pairings conjoining quite diverse biological kinds (or different life-forms), for example *piko dhéke*, "quails (and) rats," another reference to crop pests, and thus another indication of the functional definition of such classes. Here it is also noteworthy that *kolo* (dove) further pairs with *piko* to form *piko kolo*, referring to birds like Columbiformes and Galliformes that are regularly hunted as food, and hence to a utilitarian category of another sort.

The importance of functional criteria in various instances of folk biological classification has been forcefully argued by a number of authors (see Hunn 1982; Morris 1984:57; Randall and Hunn 1984; Turner 1987). Yet there are obvious formal differences between binary expressions like *peti kolo* and a term like *nipa* (snake), which, as I show just below, designates a well-defined taxon readily distinguishable on the basis of perceptual characteristics alone. Other examples of lexical pairing involving ethnobiological categories are discussed toward the end of the paper, where the significance of this pattern of naming is considered further.

NAMING, IDENTIFICATION, AND TAXONOMY

During the last two decades much attention has been given to questions of whether, or to what extent, folk classifications are organized according to the taxonomic principle encountered in scientific biology (see Atran 1990; Berlin 1992; Bulmer 1979; Ellen 1986; Hunn 1976; Hunn and French 1984; Randall 1976, 1987; Taylor 1990:60–83; Wierzbicka 1984). Although *taxonomy* is sometimes used synonymously with *classification*, or is equated with any classification organized in part by relations of inclusion, taxonomy as a systematic feature of classification is most clearly in evidence where class inclusion admits at least three levels (two or more kinds are conceived as members of a more inclusive category that in turn instances a still more inclusive class) and where this is combined with transitive relations (if 'a' is a member of 'b,' and 'b' of 'c,' than 'a' should also be recognized

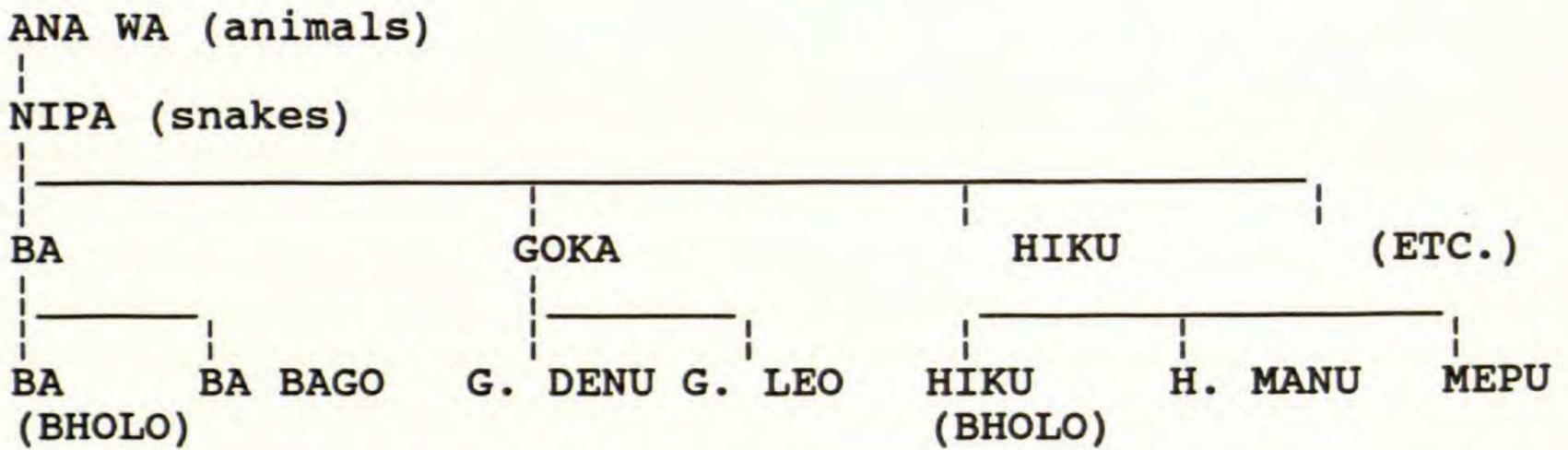


FIG. 1—Nage classification of snakes arranged in a tree diagram.

as a member of 'c'). Later on I discuss features of their language that indicate that Nage do not distinguish class inclusion from other sorts of association which I call resemblance. Even so, particulars of biological nomenclature reveal that in limited areas, Nage classification of living things does admit true taxonomic relations comprising more than two levels of named taxa. In order to illustrate such a taxonomic ordering I describe the Nage classification of snakes (*nipa*; see Table 1 and Fig. 1).

Nage ethnoherpetological classification comprises four levels, and displays not only inclusion but also transitivity (a snake is an animal, thus any particular named kind of snake is also an animal). These levels are indicated by *ana wa* (animal), *nipa* (snake), a series of 10 terms denoting zoological species or genera, and a series of further terms referring to varieties of several more inclusive kinds. These are listed in Table 1(a).

In the absence of a comprehensive ethnozoological investigation, the herpetological identifications given in Table 1 must be considered provisional. Nevertheless, the scientific referents of *ba*, *gala*, *goka* (*goka denu* and *goka leo*), *hiku*, and *pupu zupi*, all of which designate quite distinctive species, are beyond reasonable doubt. Following van Hoesel (1958:33–34), *ulu pali*, the "two-headed" snake, is a cylinder snake (*Cylindrophis opisthorhodus* Boulenger). The term *goko*, designating what Nage describe as a "flying snake," names a species of *Chrysopelea*, probably *C. ornata* (Loveridge 1946:133–134; Reinhard and Vogel 1971:412). Although the species is found in the Indonesian archipelago as far east as Sulawesi (Celebes), it does not appear in de Rooij's (1917:304) list nor, so far as I can discover, in other lists of Flores species. Even so, informants' detailed descriptions leave little doubt of its presence in central Flores.

In contrast to the foregoing categories, *sawa* and *nipa 'e'e* each appear to denote two or more different species. *Sawa* (not to be confused with Indonesian 'sawa' or the same word as used in the Ende and Lio regions of Flores for pythons) is applied to a rat snake (probably *Elaphe subradiata*); but may refer as well to another large snake (perhaps *Dipsadomorphus cynodon*; see de Rooij 1917:200). Employing de Rooij's and other lists, elimination alone would suggest an association of *nipa 'e'e* with *Psammodynastes pulverulentus* (de Rooij 1917:202; cf. Verheijen 1982), and perhaps one or more wolf snakes (*Lycodon* spp.). In fact, *nipa 'e'e*, which literally means "ugly snake" ('e'e, ugly, unattractive, deteriorated), names a rather

TABLE 1.—Kinds of *nipa* (snakes).

BA	Russell's viper, <i>Vipera russelli limitis</i>
BA (BA BHOLO)	Common Russell's viper
BA BAGO	"Hurling" Russell's viper
GALA	Slender, dark blue arboreal snake, <i>Dendrelaphis pictus</i>
GOKA	Python, <i>Python</i> spp.
GOKA DENU	Reticulated python, <i>P. reticulatus</i>
GOKA LEO	Timor python, <i>P. timorensis</i>
GOKO	Flying snake, <i>Chrysopelea</i> sp.
HIKU	Green tree viper, <i>Trimeresurus albolabris</i>
HIKU (HIKU BHOLO)	Common <i>hiku</i>
HIKU MANU	Smallest and least dangerous variety of <i>hiku</i>
MEPU	Largest and most poisonous variety of <i>hiku</i> , also called <i>hiku éko to</i> , "red-tailed <i>hiku</i> "
LOLA BA	Small, nonpoisonous snake resembling Russell's viper (<i>ba</i>) in coloration, possibly the Indian Wolf Snake, <i>Lycodon aulicus</i> , or <i>L. subcinctus</i> [van Hoesel 1958:35]
NIPA 'E'E	"Ugly snake," two or more species of small, nonpoisonous snakes, probably including <i>Psammodynastes pulverulentus</i> and <i>Lycodon</i> sp.
NIPA KELA	"Variegated snake," sometimes classified as a variety of <i>nipa 'e'e</i> , perhaps <i>Psammodynastes pulverulentus</i> .
PUPU ZUPI	Spitting cobra, <i>Naja naja</i> (<i>zupi</i> , to blow, exhale)
SAWA	Large, nonpoisonous snake, <i>Elaphe subradiata</i> or <i>Dipsadomorphus cynodon</i>
SAWA PIPI TO	Red cheeked <i>sawa</i> , not distinguished by association with a particular species from other snakes designated as <i>sawa</i>
ULU PALI	"Two-headed" snake, <i>Cylindrophis opisthorhodus</i> Boulenger (<i>ulu</i> , head; <i>pali</i> , at both ends)

Sources of information on Florenese snakes: Grzimek et al. 1971, Gruber 1971, van Hoesel 1958, Loveridge 1946, Petzold 1971, Reinhard and Vogel 1971, de Rooij 1917, van Suchtelen 1921, Verheijen 1967, 1982.

general category comprising several harmless, mostly small, and otherwise undistinguished species that can further be designated with descriptive expressions referring to coloration (e.g., *nipa 'e'e mite*, black, dark *nipa 'e'e*; *nipa 'e'e deto deto*, flecked, speckled *nipa 'e'e*).

With regard to the descriptive quality of the term, also included among these may be a snake Nage call *nipa kéla* (variegated, multicolored snake). Indeed, the statements of two informants indicated that this category could be subsumed by *nipa 'e'e*, with one man rendering the name as *nipa 'e'e kéla*, while descriptions provided by others contrasted *nipa 'e'e* and *nipa kéla*. Similar disagreement concerns *lola ba*, denoting a small, harmless snake named with reference to its resemblance to the deadly Russell's viper (*ba*; whether *lola* has another relevant sense is unclear), which some Nage also described as a "kind of" *nipa 'e'e*.

In view of their highland territory, it is not surprising that I encountered no special terms for the eight or so species of sea and freshwater snakes reported for Flores (see de Rooij 1917:304). In fact only a minority of people are familiar with aquatic snakes that live entirely in water (or *nipa ae*, water snakes, as they are simply described). While one man claimed that *nipa kéla* referred to such a snake, others denied this. From direct questioning, Nage appeared to be unfamiliar as well with blind snakes (genus *Typhlops*), of which at least two Flores species are reported (de Rooij 1917). Two informants described "earth snakes" (*nipa awu*) living in cavities some distance underground; but their descriptions did not accord with distinctive features of *Typhlops*. That blind snakes do not figure clearly in the classification of *nipa* is consistent with their subterranean habitat and secretive behavior (Loveridge 1946:110). Nage unfamiliarity with "water snakes" and "earth snakes" justifies the omission of both from Table 1.

It is worth noting that the number of named taxa in Table 1 is comparable to those reported from other parts of Flores (see van Suchtelen 1921:60, who reports nine named varieties for the Ende region, and Verheijen 1982:164, who gives a list of 11 for Komodo). While not all herpetological species present in central Flores are included in their classification of snakes, all evidence suggests that Nage apply *nipa* only to true snakes. Questioning thus revealed that neither eels (*tuna*) nor centipedes (*héte te'e*), for example, are classified as *nipa* (cf. Arndt 1961:359, 1933:295, whose dictionaries indicate that centipedes may be so classified in the neighboring languages of Ngadha and Lio).

Since all *nipa* are *animals (ana wa)*, the information presented in Table 1 reveals a taxonomy comprising at least three levels for any terminal taxon (see Fig. 1). Several usages indicate a fourth level. The two species of python (*goka*) are distinguished as *goka denu* and *goka leo*. *Leo*, the name of the black-naped oriole (*Oriolus chinensis*), refers to the resemblance between the coloration of one kind of *goka* (*P. timorensis*) and the bird's brilliant yellow and black plumage. The other modifier, *denu*, which is applied to the less colorful (though reportedly more aggressive) kind of python (*P. reticulatus*), has no further meaning that could illuminate its use in this context. At the same time *goka denu* specifies a kind that is often designated simply as *goka*, or *goka bholo* (common python). It is thus clearly the unmarked member of the pair.

The categories *ba* and *hiku* provide examples of the same pattern. Nage distinguish *ba bago*, a variety of Russell's viper that characteristically hurls (*bago*)

itself at victims, from a more usual variety, *ba*, or *ba bholo* (common *ba*), which does not. The hurling viper is sometimes also described as smaller and possessing a less pointed tail than the other sort.³ Similarly, in addition to the usual and unmarked variety of *hiku* (or *hiku bholo*, the green tree viper), Nage distinguish a smaller and less dangerous sort called *hiku manu* (*manu* is "domestic fowl," alluding perhaps to the fact that fowls are able to kill it) and a larger, more aggressive and especially venomous sort distinguished as *mépu* or occasionally, as *hiku éko to*, "red-tailed *hiku*."⁴ Not only do Nage speak of *mépu*, *hiku bholo*, and *hiku manu* as variants of a single kind, however; several informants described them as possible growth stages of one and the same snake. While no such claim was made with regard to the two varieties of *ba*, the herpetological literature indicates that the hurling behavior attributed exclusively to *ba bago*—the snake's ability to project itself towards a victim with such force that its tail leaves the ground—is characteristic of Russell's vipers in general (Loveridge 1946:176). It seems that, here as well, one may be dealing with a single species, or even subspecies.

Nage were similarly unsure whether *sawa pipi to*, "red cheeked sawa," designated a kind of snake distinct from those simply designated as *sawa* (see Table 1). Most thought there was just one sort, and that the longer name referred to the fact that some *sawa* have red cheeks, indicating a more aggressive temperament. In no case then do lexical distinctions pertaining to the categories *ba*, *hiku*, or *sawa* unequivocally refer to distinct natural species, or what the Nage, employing an Indonesian term, describe as a difference of *jenis* (kind, type, species). In this regard, the classification of these three kinds of snakes appears to differ from that of pythons (*goka*), in which the two named varieties are associated with two separate herpetological species. Yet even here there is a question of how far Nage themselves regard the latter as differing in kind. Some informants indeed described them as constituting a single kind (*jenis*). One man even claimed that *goka leo* (*Python timorensis*) were nothing other than pythons with fresh skins, and *goka denu* (*P. reticulatus*) animals with old skins that had become dull and rough. What this suggests is that in spite of lexical distinctions composing a fourth level of Nage snake classification, all *basic* or *generic* terms occupy the third level. By the same token, none of the taxa in this level was spoken of as constituting a single kind with one or more others, although *lola ba* and *nipa kéla* appear to be more closely associated with *nipa 'e'e* than with other categories, if they are not to be treated as components of a fourth level immediately below *nipa 'e'e*.

Among the snake taxa listed in Table 1, only *nipa 'e'e* (ugly snake) and *nipa kéla* (variegated snake) incorporate *nipa* as a necessary component of the names. *Nipa* is frequently, though not mandatorily, included in the names of several others, including *nipa ba*, *nipa sawa*, and *nipa ulu pali*. In contrast, the remaining kinds (*gala*, *goka*, *hiku*, *lola ba*, *pupu zupi*) are less usually, if ever, expressly designated as *nipa*. Whatever the reason for this contrast (see Taylor 1990:58–59), there is nothing to suggest that the latter five are considered any less representative of the category *nipa* than are the others.

This circumstance raises the wider issue of focality. While certain categories located at the fourth, and least inclusive, level of Nage snake classification are evidently focal or prototypical (e.g., *goka denu* or *goka bholo*, in relation to *goka* in the more inclusive sense), there is no evidence that one or more of the third

level categories are more closely identified with the term *nipa* than are the others. The fact that certain snakes, most notably pythons, are represented by Nage as exceptional in regard to size or behavioral peculiarities does not render them peripheral to the category *nipa*. On the contrary, pythons (*goka*, but also occasionally *nipa goka*), considered as embodiments of leaders of groups of earth spirits (*nitu*) whose lesser members are manifest as other kinds of snakes, are in at least one respect central to the category. Following Randall and Hunn (1984), genuine life-form taxa as defined by Brown may be a rarity in folk classifications. However, the evidence of Nage usage indicates that *nipa* is subject to none of the restrictions associated with supposed life-form terms encountered in some other languages, such as Samal or Sahaptin (*ibid.*).

This absence of a hierarchy of central and peripheral members signals an important difference between Nage classification of snakes and other animals (*ana wa*). It is also consistent with the degree to which the former accords with a scientific model of taxonomy. It may be noted, for example, that while *bird* arguably exists as a covert category of Nage ethnozoology, certain less inclusive named categories, and particularly the one labelled *ana peti* (small passerine birds, especially *Lonchura*), are demonstrably more focal, or more closely associated with the concept of *bird*, than are others. (Pertinent here is the fact that Nage usage sometimes equates *ana peti* with birds in general, while in other contexts the term is applied to a far more restricted class of avifauna.)

POLYSEMY AND CLASS INCLUSION

Terms like *ba* and *hiku*, denoting common, unexceptional, prototypical, or unmarked varieties at the least inclusive taxonomic level, can be called polysemous, since they refer both to more inclusive and included taxa. In folk classification, this pattern is so widespread as to be characteristic (e.g., Berlin et al. 1973; Hage and Miller 1976; Berlin 1992:110, citing Wyman and Harris 1941). As indicated above, it also occurs in other areas of Nage ethnobiological nomenclature. Apart from distinctions among two or more wild species, the same pattern is encountered when undomesticated varieties are marked with the modifiers *witu* (undergrowth, brush) and *bene* (wild) and thus distinguished from domesticated counterparts designated only with the basic term (e.g., *wawi*, domestic pig, and *wawi witu* or *wawi bene*, wild pig). In contrast, other examples of the same formal pattern are unproductive in the sense that the marked term is not regarded as an instance of a category designated by the unmarked. Thus while various uncultivated plants are named by terms incorporating the name of a cultivated plant plus the modifier *nitu* (spirit; see Balee 1989, who describes a similar nomenclatural practice among the Ka'apor of Brazil), "spirit rice" (*pae nitu*) or "spirit millet" (*wete nitu*) are not considered as members of the categories labelled *pae* (rice) or *wete* (millet). In a similar vein, Nage do not regard the papaya, in one dialect named *muku jawa* (Javanese banana), or the resin plant (probably *Ricinus communis*, see Verheijen 1984:17), in Bo'a Wae called *padu goa* (Goanese papaya), as types of banana or papaya, respectively.⁵

Understood simply as a pattern in which more inclusive and exclusive meanings of a single term are analytically distinguishable, polysemy in Nage naming

practices is not in every case clearly associated with taxonomic relations in the strict sense. A taxonomic model is attested where the exclusive (or included) sense can be linguistically specified with the use either of an alternative name or, more usually, by a modifier meaning "common," "typical," "real, true," or "original" (see Berlin 1992:34). The language of scientific biology uses this device, as for example when herpetologists speak of "true snakes." As regards both zoological and botanical nomenclature, polysemy in Nage classification articulates taxonomic relations with the modifier *bholo*, as seen in the case of the classification of snakes. *Bholo* otherwise translates as "just, merely; only, alone; empty;" thus an expression like *hiku bholo* might be translated as "(it is) just a hiku" (i.e., not a *hiku manu* or *mépu*). Nowadays, bilingual Nage often use instead the Indonesian word *biasa*, "common, ordinary, usual" for this purpose; hence unexceptional *hiku* are also specified as *hiku biasa*.⁶

Since this device appears as a general feature of Nage biological nomenclature, the distinction between taxonomic and nontaxonomic polysemy pertains not so much to a difference between their classification of snakes and other animals (*ana wa*) as to one between biological and nonbiological objects. In this respect, the Nage case supports the view that natural species are everywhere classified differently from artifacts and other cultural things (see Atran 1990). Nevertheless, the Nage treatment of snakes (*nipa*) is sufficiently different from their classification of most other zoological kinds (which in turn more closely resembles the classification of artifacts) as to raise a query. The perceptual salience of snakes, in respect of their physical form, method of locomotion, and so on, does not provide an adequate explanation. Thus some other Indonesian peoples, for whom snakes would appear to be just as salient, do not possess a single term that includes all named ophidians. The eastern Sumbanese (Forth, unpublished field notes) and the Nuaulu of Seram (Ellen 1979) provide examples. In view of the same comparison, neither utilitarian factors nor general cultural complexity, on which Brown's (1977, 1979) quasi-evolutionary argument relies in accounting for the emergence of life-form categories, can account for the appearance of a single term for *snake* in some eastern Indonesian societies but not in others.

The systematic taxonomic ordering of snakes obviously relies to a large degree on the presence in Nage of a term denoting animals (*ana wa*) that unequivocally includes snakes, as well as a nonpolysemic life-form term (*nipa*) designating a well-defined taxon subordinate to *ana wa* that facilitates transitive relations (i.e., all specific kinds of *nipa* are simultaneously recognized as *ana wa*). As regards ethnozoology, the only other area of the classification revealing a similar degree of taxonomic rigor concerns fish. As a gloss of Nage *ika*, *fish* is the only other apparent life-form taxon designated with a single lexeme. This characterization, however, requires qualification. Nage do not apply *ika* to several species of freshwater fish described as having scales only on the head and as remaining at the bottom of streambeds or attaching themselves to rocks. Nor are eels (*tuna*) included in the category. On the other hand, sharks (*iu*), dolphins (*lobhu*), and whales (known only as *ika méze*, big fish) are counted as *ika*. In the last regard, it appears significant that as an interior people, Nage are quite unfamiliar with sea creatures, and are likely to know of whales, dolphins, and sharks only indirectly and simply as aquatic animals resembling large "fish" (*ika*). Thus *ika*

provides a less straightforward example of an ethnozoological category corresponding to a unit of scientific taxonomy than does *nipa*.

Opposed to writers who see ethnozoological classification as reflecting a natural order of perceptually salient, physical (morphological or behavioral) difference and resemblance are those who consider such classifications as grounded largely in functional or practical, and therefore social and cultural, considerations (e.g. Hunn 1982; Ellen 1993; Randall 1987; Randall and Hunn 1984; Wierzbicka 1984, 1985). That practical factors play little part in the Nage classification of snakes follows from several particulars. First, snakes have virtually no economic importance, figuring neither as a source of food (unlike fish) nor as stealers of domestic fowls (unlike diurnal raptors and monitor lizards, for example) or as crop pests (unlike various birds and insects).⁷ Several species are venomous and dangerous to humans. This is not a significant factor for the Nage classification of snakes, however, since there is no term denoting a separate class of poisonous snakes, nor any word readily translatable as "venomous."⁸ The use of *hiku ba*, a phrase conjoining the names of two species of viper, to denote dangerous snakes in general, does not contradict this characterization; for as shown earlier, such expressions do not denote discrete taxa. On the other hand, creatures that similarly deliver painful and injurious bites, such as scorpions (called *éko teko*, striking tail) and centipedes (*héte te'e*), are not classified as *nipa*.

Finally, while snakes in general are identified with spiritual beings, and in some contexts particular kinds of snakes with particular spirits, there is no formal correspondence between ethnoherpetological and spirit classification. Although spirit leaders are commonly thought to assume the form of pythons, other, lesser spirits can manifest as any sort of snake. What is more, some such beings take the form of fish and eels rather than snakes, while some named varieties of spirits (e.g., *noa*) never appear in snake guise. For Nage, the possibility of snakes being an embodiment of spiritual beings, most of which are capable of causing mystical harm, is no less a matter of practical, or functional, concern than is the possession by some snakes of poisonous bites. Despite the close association of spirits with snakes, the Nage classification of spirits provides a good example of a nonbiological classification in which polysemy does not articulate scientific taxonomy. I will return to this topic after reviewing several other issues of classificatory language.

CLASS INCLUSION AND LANGUAGE

Because taxonomic relations are systematically revealed in certain areas of their ethnozoological classification, one cannot simply assume that the Nage language possesses special means of explicating class (or hierarchical) inclusion. In modern scientific biology, inclusion, the fundamental principle of taxonomy, is unequivocally expressed with terms like *genus* and *species*. Almost by definition, traditional societies lack special terms that exactly translate these concepts. Sometimes, folk biological classes are described with general terms meaning "kind, type," "group, grouping," or even "lineage, clan." Nage uses no words of these sorts for this purpose (cf. Ellen 1993:61). Nor is there a word that corresponds to English "member." The inclusion of one category by another is indicated by first identifying a creature as a python (*goka*) and then as *nipa mogha*, "also a snake."

This statement, however, does not reveal which is the inclusive category; nor does it necessarily imply that all members of one category will belong to the other.

There are two other ways of expressing inclusion, as for example when one wants to say "the python is a kind of snake."⁹ The first is exemplified by *goka (ke) ko'o nipa* (python (the) [is] of snakes; *ke*, functioning either as a demonstrative pronoun or definite article, is optional). As a preposition, *ko'o* generally indicates possession, participation, or containment. Class inclusion is one sort of relationship thus denoted, yet it is not the only one, possession of property and anatomical relations between whole and part being others (e.g., *ko'o nga'o*, of me, mine). Moreover, the form of words indicating the inclusion of one class in another (such as *pythons* in *snakes*) does equal service in expressing the inclusion of an individual within a class. The sample statement *goka ke ko'o nipa* is therefore reversible; one can also say *nipa ke ko'o goka*, "that (particular) snake is a python." In other words, the form pertains as much to identification of single specimens as to classification, or the articulation of relations between categories. More generally, statements like *X (ke) ko'o Y* are expressions of identity comparable to "X is Y," with *ko'o* possessing some of the functions of the English copula.

The other form of statement capable of conveying the idea that pythons, for example, are a kind of snake is *goka (ke) bhia ko'o nipa*. This differs from the first only by the appearance of *bhia* (dialectal *bhila*). While often translatable as "like, resembling," *bhia* is most accurately glossed as "(to possess the) manner, way, form, shape, or appearance of something" (cf. Ellen 1993:61 s.v. Nuaulu *nita*, way). As a substantive it also has the sense of "appearance of a thing" (see *bhia nge'e ko'o goka*, "this shape belongs to pythons," i.e., "this looks like a python;" *bhia nge'e* can also mean "like this, in this way"). Consistent with the foregoing, Nage pointed out that *bhia* referred not to just any similarity, but to a particularly close resemblance between two things. *Goka bhia ko'o nipa* is therefore more accurately translated as "(the) python has the form of a snake" than as "pythons are similar to snakes."

In any language to say that an item has the form of something can imply that it is an instance of that thing.¹⁰ Yet, in response to questioning, Nage sometimes rejected *goka bhia ko'o nipa* as an expression of the python's inclusion in the category of snakes, claiming that the phrase should be understood as stating that pythons resemble snakes. Some informants then further pointed out that this cannot be correct, since pythons are not "like" snakes—they "are" snakes. Statements of this kind were nevertheless elicited or observed with sufficient regularity as expressions of relations between, for example, individual kinds of snakes and the category *nipa*, as to confirm that *bhia ko'o* (to have the form of) refers to inclusion in certain contexts. That the same form of Nage words can express either inclusion or resemblance is perhaps not surprising, for the same is true of English. In colloquial speech to say that "X is a kind of Y" does not always entail that X is, in any strict sense, a member of class Y. It can also mean that X is "something like Y" or "is of a kind with Y" (e.g., "a ukelele is a kind of guitar;" "a mug is a kind of cup," cf. Kempton 1978; "a bat is a kind of flying mouse"). In this respect, the main difference between the two languages may be that, whereas English "kind of" primarily expresses inclusion, Nage *bhia ko'o* has resemblance as its principal sense.

Also relevant in this connection is the modern Nage use of Indonesian words like *macam* and *jenis*, two terms they now regularly employ when talking—in the national language, but sometimes in Nage as well—about classificatory relations. In standard Indonesian, *macam* (kind, sort, type), expresses both inclusion and resemblance, rather like colloquial uses of English “kind.” According to the dictionaries (e.g., Echols and Shadily 1963), *jenis*—a word deriving ultimately from Latin *genus* (kin) via Arabic (cf. Ellen 1993:61)—has more the sense of “species,” and should express class inclusion exclusively. Yet Nage tend to use *macam* and *jenis* interchangeably for resemblance and inclusion. In their use of the Indonesian words, therefore, they do not consistently distinguish between the two sorts of relations, just as they do not always do so in their use of *bhia ko’o*. It is also noteworthy that both *jenis* and *macam* refer to exclusive classes in Indonesian language statements like *delapan jenis ular*, “eight kinds of snakes,” whereas Nage *bhia* is not used in this way. In addition, by using the Indonesian words, Nage are able to specify two things, or even two categories (e.g., *goka denu* and *goka leo*), as being of, or constituting, a “single kind” (*satu jenis saja*).¹¹

In any language ambiguity of this sort is bound up with polysemy insofar as statements interpretable as expressions of inclusion as well as resemblance can be seen to involve two senses of the more inclusive term (e.g., *table* in “a desk is a kind of table”). Where this distinction is expressible in language—as in the case of Nage snake classification, where the more specific sense of *hiku* can be marked with the modifier *bholo*—then polysemy entails inclusion and hence taxonomy. Yet such is not always the case. The Nage classification of spirits provides a good illustration in this regard, as well as an apt comparison with their ethnoherpetological taxonomy. While reputedly manifest as biological kinds, and especially as snakes, spirits do not exist like animals as empirical beings with attributes independent of the mind. In this sense, then, they are human creations to the same extent as are tools and other material artifacts, and owing to their immateriality are more easily modified.

Of all named categories of Nage free spirits, the most often mentioned is *nitu*. This term is applied to earth spirits manifest as snakes, as well as to a broader class to which this and other, distinctly named, varieties (e.g., *bapu*, *noa*, *logo lia*, *manu ke’o*) belong. Yet while Nage often depict the separately named spirits as instances of *nitu* in the more inclusive sense, and designate specific spirit images sometimes with *nitu* and sometimes with one of the other terms, they will typically deny inclusion when questioned directly, stressing instead differences between separately named spirits and the unmarked variety of *nitu*. Things are quite different with snake classification, where *ba bago*, for example, is clearly regarded as denoting a kind of *ba* (Russell’s viper), the other kind then being specifiable as *ba bholo*. Accordingly, as I confirmed in direct questioning, there is no expression *nitu bholo* (common, true *nitu*) that could distinguish the unmarked variety from the broader class.

Patterns of this sort, wherein a discernible polysemy does not effect taxonomic relations, are better described as instances of encompassment rather than inclusion. Encompassment is adopted from Dumont (1986), who uses it to refer to a situation in which a term subsumes its contrary, the defining feature of relations he calls “hierarchical classification” or “hierarchical opposition.” Since Dumont

(1986:227) characterizes the relation between the zoological categories *animal* and *vertebrate* as an instance of hierarchical opposition, I depart from his scheme in separating encompassment from taxonomy, in part by associating the two principles with two distinct contexts of polysemy. To do so, however, is not to suggest that taxonomy and encompassment are completely opposed principles of classification. Indeed, they are closely linked by what appears to be an inherent cognitive difficulty in conceiving of a class completely abstractly, or separately from one or more of its members: its prototypical or focal instances. With taxonomy, the relation between central and peripheral members recalls encompassment insofar as the peripheral instances are subsumed as parts of a conceptual whole that, to some degree, is identified (by name or otherwise) with their contrary, which is to say the central member or members.

Since taxonomic contraries may be expected to share one or more features in common, their relationship is also based upon resemblance. Indeed, taxonomy may develop—ontogenetically if not phylogenetically—from resemblance, that is from a perception of similarities to the formulation of abstract classes (see Berlin 1992, Ch. 2, especially pp. 63–64). Consistent with this, while class inclusion always entails resemblance—between most if not all members of the same class—resemblance need not entail inclusion. At most, from a resemblance between things it might be inferred that they belong to a single kind. Yet this kind need not be definitely conceptualized.

While resemblance is a property of both taxonomy and encompassment, the two relations differ in that taxonomic resemblance concerns only terms at the same level of contrast. (Thus, logically, a viper cannot be said to resemble a snake.) Encompassment, on the other hand, entails an additional resemblance, tending towards an identity, of terms at the superordinate and subordinate levels, inasmuch as these are not consciously distinguished. In this respect, encompassment is a fundamentally binary relationship, whereas taxonomy, requiring a superordinate term plus contrasting terms at the subordinate level, is minimally ternary. At the same time, the fact that encompassment links comparable terms that, owing to the ambiguity of the relation, exist simultaneously at the same and at different levels, recalls the equivocal nature of Nage *bhia ko'o* (to have the form of). That this phrase expresses both resemblance and inclusion underlines the fact that taxonomy and encompassment are not always easily distinguished. Encompassment is also comparable to what Hunn and French (1984) call *coordination*; a biological category is named as X plus a modifier, and thus contrasted with unmodified X without the latter being further identified as the name of a class superordinate to both. I differ from these authors, however, in regard to their identification of coordination with polysemy in general, or their claim that construing X as the common name of distinct superordinate and subordinate taxa always imposes an alien taxonomic form on ethnobiological naming patterns.

PARALLELISM AND LEXICAL PAIRING OF BIOLOGICAL NAMES

In characterizing the Nage classification of snakes (and, in a lesser degree, of other animals) as taxonomic, and their classification of spirits as nontaxonomic, I distinguish *classification*, as the more general term denoting ways in which cate-

gories are conceptually connected, from *taxonomy*, referring to a particular classificatory principle. While inclusion is essential only to taxonomy, any form of classification entails the perception of resemblance. Yet members of a class may share one or more features in common with all other members or they may not. In the first case, one is dealing with monothetic classification, and in the second with polythetic classification—a pattern of Wittgensteinian “family resemblances” wherein any member shares different features with different other members (Needham 1975).

Taxonomy is distinguished from other forms of classification not on the basis of the monothetic nature of component classes, but by the abstract character of the superordinate class: the fact that it is conceptually distinct from all of its members. With other forms of classification, by contrast, items can be grouped together on the basis of resemblance alone, that is, on the basis of some purely horizontal, or cognatic, conception of relatedness—as for example, when two or more entities are spoken of as being related to one another in a kinship idiom (cf. Berlin 1992:19–20). In order to distinguish other forms of conceptual order from taxonomic classification, some of the former have sometimes been characterized as symbolic classification (Needham 1980:45). How useful it might be to characterize all nontaxonomic classification as symbolic is a matter that need not concern us here. It may however be remarked that forms of classification encountered in cosmology and ritual, for example, appear on the whole not to involve taxonomic relations.

As regards animal categories, one instance of a nontaxonomic classification based solely on resemblance is the previously mentioned practice of lexical pairing. Binary expressions conjoining a particular pair of ethnobiological names operate as a sort of dualistic synecdoche since they refer to a class of things larger than the two kinds named. As demonstrated with reference to *peti kolo*, munia-dove, however, such classes do not participate in taxonomic relations owing to their indeterminate nature, internal variety, and collective reference (or indivisibility).

Bound up with these factors is the functional, or practical, import of the class. Further instances of the idiom, all of which exemplify this quality, are given in Table 2, which includes pairs of names referring to crop pests, wild animals used as food, bothersome creatures, particularly valuable domestic animals, and so on. A similar form of binary classification is reported for the Melpa of New Guinea, who also pair biological kinds on the basis of “functional similarities,” some pairs then “standing for the whole class” that they exemplify (Lancy and Strathern 1981:782; see also Ellen 1986:90–91).¹² It is important to note, however, that Nage lexical pairing does not concern ethnobiological categories alone, but applies as well to nonbiological things that, as several authors (van Esterik 1982; Stanlaw and Bencha 1985) have convincingly shown, are not classified in accordance with a consistently taxonomic model. Examples of such pairings include *nitu bapu*, comprising the name of two kinds of spirits and referring to a larger class of spiritual beings; *ebu kajo*, “grandparent” and “great-grandparent,” in combination designating ancestors in general; *uta tua*, “green vegetables” and “palm wine,” a reference to food and especially simple foods; and *kita ata*, an expression combining the first person plural inclusive pronoun with a word specifying humans dissociated from the speaker, and referring to human beings in general.

TABLE 2.—Instances of lexical pairings applied to more inclusive classes of animals.

BIRDS:	
<i>peti kolo</i>	munia, dove; birds that destroy crops (see text)
<i>piko kolo</i>	quail, dove; game birds (see text)
<i>iki jata</i>	small falcon, Brahminy kite; diurnal raptors, especially ones that regularly steal domestic fowls
<i>jata kua</i>	<i>kua</i> names two or more kinds of eagle; the reference of this expression is the same as the <i>iki jata</i>
INSECTS:	
<i>emu hale</i>	mosquito, fly; bothersome flying insects
<i>maju méla</i>	bedbug, dog flea; tiny biting insects (also a reference to undesirable qualities removed from houses in an annual rite of cleansing)
<i>metu mule</i>	ant or red ant, black ant; ants in general, conceived as small insects that deliver a painful sting
REPTILES:	
<i>hiku ba</i>	green tree adder, Russell's viper; poisonous snakes
<i>iu ngebu</i>	shark, saltwater crocodile; dangerous animals inhabiting the sea. (Note: This expression pairs a reptile with a nonreptile.)
MAMMALS:	
<i>kogha wawi</i>	deer, (wild) pig; major and most valued game animals. (See also <i>kogha wawi</i> , <i>kuza tuna</i> , referring to wild foods in general, derived from both land and water; <i>kuza</i> , crustacean (e.g. crayfish); <i>tuna</i> , eel.)
<i>bheku meo</i>	palm civet, (wild) cat; small animals occasionally taken as food, though particularly in the context of the annual <i>ngobu</i> ritual.
<i>kutu bétu</i>	porcupine, giant rat; smaller animals occasionally hunted; sometimes paired with <i>bheku meo</i> (see above).
<i>bhada ja</i>	water buffalo, horse; largest and most valuable domestic animals, all animals used as bridewealth (cf. <i>bhada wea</i> , buffalo, gold; major animate and inanimate components of wealth, including bridewealth; thus a reference to wealth in general).

Another example provides a particularly revealing illustration of the functional and cultural, as opposed to physical or perceptual, basis of this form of dualistic classification as it concerns natural kinds. Nage indicate the nocturnal presence of spiritual danger with the double pairing *po ko, uci meci*. *Po* and *ko* both refer to owls and owl vocalizations. *Meci* denotes both a kind of cricket and the insect's characteristic sound, while *uci* is a nocturnal vocalization not linked exclusively with any zoological species. Since Nage regard all four sounds as auditory manifestations of witches and malevolent spirits, and thus as inauspicious omens, it is clearly this common mystical association rather than any morphological or behavioral similarities that links together the implicated zoological kinds.

While the motivation for such pairings is resemblance relating to the functional value—or cultural significance—of named kinds, the fact that it is always two kinds, or sometimes two pairs, that are named together cannot be explained in practical terms. This reflects instead a pervasive dualism, a general principle of Nage culture evidenced in a wide variety of social, cosmological, and ritual forms. Lexical pairing is not simply a common form of naming objects, but a general feature of Nage syntax. Thus, words with verbal senses are also regularly juxtaposed (e.g., *tana ngale*, "to enquire, request," comprising two words that by themselves mean "to ask"), as are terms denoting types of social groups, territorial units, social persons or statuses, spiritual beings, and kin (see Forth 1993:117–119).

As some of these applications may suggest, lexical pairings do not always designate classes of things more inclusive than the pair actually named. In many cases the component terms are roughly synonymous (as in the example of *tana ngale*). In this instance, moreover, the main function of the idiom is disambiguation rather than class designation. (Thus *tana* means not only "to ask," but also "land, earth," and so when similarly conjoined with *watu*, "stone," figures in another pairing, *tana watu*, as a reference to "territory.") Disambiguation is also operative in the zoological pairings *kogha wawi* and *bheku meo* (see Table 2) insofar as it is immediately clear, from the complementary terms, that the referents are specifically wild pigs (*wawi witu*) and wild cats (*meo witu*), rather than their domestic counterparts. Nevertheless, whether they are synonyms or words with quite distinct referents, conjoined terms always have significances that are in some way comparable or figure as complementary components of unitary meanings, so that one can accurately speak here of parallelism (cf. Jakobson 1973).

In addition to the mundane lexical pairing illustrated above, the Nage tendency "to speak in pairs" (cf. Fox 1988) is extensively evidenced in the canonical parallelism of Nage ritual speech, which requires that elements (words, phrases) always be combined with specific other elements. Certain pairings from everyday speech also appear in this formal idiom, which is largely reserved for ceremonies (addresses to spirits, invocations, prayers). In this case they are typically elaborated by the addition of other words or phrases (verbs, modifiers) separating the paired elements. For example, the phrases *kogha poma, wawi jola* (deer bathe, wild pigs wallow) refer in palm-tapping ritual to people enjoying an abundant yield of the Arenga palm (*tua*). Similarly, the pairing *piko kolo* (quail [and] dove), referring to game birds, is elaborated in the ritual idiom as *piko ta'a wito io, kolo*

ta'a 'isi moko (quail that takes along others, dove that urges on friends), a reference to a person who desires the company of others, or seeks companions in an endeavour.

By no means do all ritual speech pairs correspond to the lexical juxtapositions encountered in more mundane speech, however. For example, in contrast to the mundane pairings *metu mule*, *kogha wawi*, and *peti kolo* (see Table 2), in the ceremonial idiom one finds the pairings *mule//ipu* (black ant//immature form of riverine fish), *wawi//manu* (domestic pig//domestic fowl), and *kata//piko* (junglefowl//quail). Denoting creatures that occur in large numbers or bear many offspring, these names are thus paired in expressions referring hopefully to human fecundity and reproductive success, viz., *woso bhia mule wolo*, *kapa bhia ipu lau nanga* (be many like black ants in the uplands, many like fish fry in the estuary); *dhadhi bhia wawi*, *mesa bhia manu* (give birth like pigs, hatch like domestic fowls); and *bi ala bhia kata mala*, *liwo bhia piko wigho* (reproduce like junglefowl in the plains, cluster together like quail [+ unidentified adjective]). As these examples show, many such ritual speech pairs include quite varied zoological kinds (e.g., insects and fish; mammals and birds), comparable only in regard to very specific attributes (e.g., swarming habits, multiple births). One even encounters animals paired with plants, as when *kata mala*, "junglefowl of the plain," is paired with *mako ae*, a flowering plant (*Ipomoea* sp., cf. Verheijen 1990:31, 51, 69) that grows prolifically near bodies of water (*ae*). In contrast, mundane lexical pairings typically denote animals that share a more general resemblance and are more closely related biologically (black ants and other ants, buffalo and horses, Munia birds and doves, civets and wild cats). A number of parallelistic expressions, including many appearing in song and aphoristic speech, conjoin the names of two kinds of birds. Yet these are mostly ones whose similarity lies precisely in the augural value of their calls rather than in their physical appearance.

Names of snakes, the most taxonomically ordered of animals, rarely appear as components of binary expressions in either mundane or ceremonial speech. In the latter idiom I have discovered only one pairing, and this comprises ethnoherpetological terms occupying different classificatory levels. The expression is *nipa lia*, *gala bha* (snake in a cave, white *gala* snake), and refers to something that is rarely seen. (The *gala* is normally a dark-colored snake.) That snakes should provide the one instance of a life-form term paired with the name of an included terminal taxon is hardly surprising. The relative absence of ethnoherpetological names from all forms of binary expression is less readily accounted for. One possibility, however, is that all named snakes—in contrast to birds or mammals, for example—are so alike that individual kinds lack special metaphorical value. Recalling that mundane ethnozoological pairings mostly designate functional classes, another factor may be that particular snakes, again by comparison to other animals, are relatively devoid of functional or utilitarian value. (As regards practical significance, while not all snakes deliver a painful or dangerous bite, all are regarded as possible manifestations of potentially malevolent beings.)

CONCLUDING REMARKS

Although no speech form unequivocally denotes class inclusion, taxonomic relations involving both inclusion and transitivity are present in Nage ethnozoological classification, while absent from other areas of classification, for example, that of spiritual beings. Taxonomic ordering, best exemplified by their classification of snakes, is not equally developed in all areas of Nage zoological nomenclature. It is not an external framework arbitrarily imposed on selected data; it is a property of certain forms of language use and so discernible as the product of their analysis. As an examination of Nage snake classification has shown, ethnoherpetological categories cannot be interpreted in any way but as components of a taxonomic order. No evidence indicates that any named kind is more focal, exemplary, or prototypical of the category *nipa* than any other. Polysemy is evidenced at lower levels, but neither polysemy nor prototypicality is inconsistent with taxonomy either in Nage or scientific zoology, where a polysemous use of terms designating both genera and species or species and subspecies (see e.g., *Naja naja naja*, the spitting cobra) is a standard and common practice.

Various instances of Nage classification reveal a nontaxonomic relationship between categories that can be called encompassment. With encompassment, inclusion is implied by linguistic usage yet usually contradicted by informants' statements. A category encompasses another when there is no regular distinction, lexical or otherwise, between a superordinate conceptual entity and one existing at the same level of contrast with a distinctly named encompassed term. While encompassment is thus formally similar to taxonomic polysemy, in which the same name is applied to taxa occupying superordinate and subordinate levels (e.g., a word denotes both a group of biological kinds and a particular kind included in the group), the latter is distinguished by a recognition by users of two distinct senses of the polysemous term. This is the formal difference. In practice it may not always be apparent whether what the analyst would recognize as polysemy articulates encompassment or taxonomy. Related to this, insofar as the Nage language does not entirely distinguish resemblance and inclusion, both classificatory relations can be expressed by the same form of words.

Using *classification* in a broad sense, a major outcome of the present study is the discovery that the Nage possess three distinct classifications of biological entities. One, which may be called ethnobiological, does admit taxonomic relations and order categories primarily on the basis of morphological and other physical resemblances between natural kinds. The other two modes of classification can both be described as parallelistic. One occurs in ritual speech, where two terms are conjoined owing to their symbolic or metaphoric similarity—the fact that the natural kinds to which they refer both serve as metaphorical references to the same things. Although ritual speech pairings are sometimes the same as those encountered in everyday language, there are numerous distinct mundane pairings that designate functional or utilitarian classes. These binary expressions operate quite differently from taxonomic names. Mundane pairings do not name categories that comprise numerable individuals, and so for this reason alone cannot participate in taxonomic relations. Nor do they serve as figurative refer-

ences, for example to qualities or powers of humans or anthropomorphous beings, as do the pairings of ritual language.

In this last regard, the two instances of binary speech contrast in a way reminiscent of the standard distinctions of metaphor (connecting semantically contrasting wholes) and metonymy (connecting parts with wholes) and of symbol and sign (cf. Leach 1976). The two applications of the pair *piko* (quail) and *kolo* (dove) exemplify these contrasts. Their elaborated combination in ceremonial contexts links the bird categories with human reproductive power, while their simple juxtaposition in mundane speech produces a form of synecdoche whose reference remains ornithological. The contrasts of whole to whole and whole to part relations, often used to characterize the distinction of metaphor and metonymy, also bear upon the contrast of resemblance and inclusion as it pertains to different forms of classification. Not constituting true taxa, expressions like *piko kolo* (game birds) do not fully accommodate relations of inclusion. Nevertheless, they do rely on inclusion—the use of two included parts to name a larger whole—to the extent that the binary expression is employed to refer to a large group of birds.

Inasmuch as Nage, when questioned directly, often deny that binary expressions like *piko kolo* comprise more than the two kinds specified by name (while observed usage indicates that they do), such expressions can alternatively be seen to involve encompassment. That is, *piko kolo* can be understood in two undistinguished senses, as a reference to all game birds and as a subsumed category denoting only quails (*piko*) and doves (*kolo*). The second sense would then contrast with an unnamed category of other game birds, similarly subsumed by *piko kolo* in the first, encompassing sense, in a way completely comparable to the relation between the spirit categories *nitu* and *bapu*. Being identifiable with encompassment, expressions like *piko kolo* are therefore dissociated from taxonomic relations in yet another respect.

Since the components of some mundane juxtapositions are identical to paired terms in ritual language, one may infer that functional resemblance is more readily converted into symbolic association than is taxonomic linkage. However that may be, it is clear that Nage connect animal categories in several ways, and only one of these is taxonomic. In this eastern Indonesian society, systematic taxonomy co-exists with nontaxonomic forms of classification, even when these concern identically named biological kinds. By the same token, identical categories form part of both hierarchical and symbolic classifications (Needham 1980). Writing on the Melpa of New Guinea, who similarly combine taxonomy and pairing, Lancy and Strathern (1981:788) suggest that the binary mode of expression may “interfere with” or “block” the taxonomic ordering of biological categories. I have no evidence that this occurs among Nage, and there is good reason to suppose it does not. For in the eastern Indonesian case, pairing and taxonomy evidently relate to forms of conceptual order effected for quite different purposes.

NOTES

¹Nage words are written with the following orthographic conventions. The /bh/ and /dh/ are implosives; /c/ approximates English ‘ch’; /gh/ represents a voiceless fricative (cf.

Dutch 'g'); while /w/ is often closer to English 'v'. Glottal stops are indicated with //'. These have phonemic value initially and medially but not terminally. In initial positions in disyllabic words (e.g., *fega*, kingfisher), /e/ (without an accent) represents the schwa. Where the /e/ is long in this position, it is marked with an acute accent (see e.g., *féga*, to regain consciousness). In monosyllabic words and in the last syllable of longer words, the /e/ is always long, as it is when followed by another vowel or a glottal stop (see e.g., *meo*, cat; *te'e*, mat); hence in these positions, in the interests of economy, the /e/ is not marked with an accent. All other letters represent sounds roughly similar to their common English referents. Whenever I mention the Indonesian language below, I refer to Bahasa Indonesia, the Malay-based national language.

²Wierzbicka (1985:157; see also 1984) argues that many speakers of "ordinary English" would not regard snakes as a kind of animal. From my own experience as an English-speaker, I would characterize such speakers as extraordinary. Wierzbicka apparently refers here to snakes being excluded from the prototype of "animal," which basically comprises large, four-footed mammals in English and in Nage as well. For all the attention Wierzbicka gives to the notion of "kind of," it is curious that she never remarks on the ambiguity of this term in ordinary English, where it can express both resemblance and inclusion. Nor does she consider whether other languages may differ from English in the way they express notions of class inclusion.

³It may also be considered less dangerous, in respect of the curious notion that if a hurling viper manages to strike its victim, the latter will be unharmed, whereas if the viper misses, the victim will become ill, as if bitten, but not seriously.

⁴Interestingly, *manu* is similarly employed to mark the smaller of two varieties of monitor lizard, *ghoa manu* and *ghoa ba'o*.

⁵As Goa (the Makassarese centre in southwestern Sulawesi) and Jawa (the island of Java) compose a standard pair designating all places outside of Flores, in this context the names mean "foreign" rather than specifically "Goanese" or "Javanese" (cf. Barrau 1979 regarding methods of naming exotic plants in Indonesia and Oceania).

⁶The pattern also occurs in the naming of cultivated and other useful plants. For example, the taxon labelled *uwi*, tuber, includes a subordinate taxon also named *uwi* but specificable as *uwi bholo* (or *uwi biasa*), as well as *uwi kaju*, cassava. Interestingly, both of the latter subsume further named varieties, so that *uwi bholo* includes *uwi boko*, while *uwi kaju* includes *uwi kaju boa*. This would appear unusual, as other plants and animals classified in this way do not include unmarked (or "common") kinds that are further divided into named varieties.

⁷Although pythons are able to swallow small domestic animals, such occurrences are rare and hence of little practical concern. Python skin is an export commodity today, and some Nage have begun to eat python flesh, a practice formerly prohibited. But these are recent developments, and pythons are not economically significant as a source of skins or food.

⁸Some snakes are said to "bite" (*kiki*) or "strike" (*kedho*). As Nage recognize, however, these behaviors are not exclusive to venomous species.

⁹Sample statements presented to informants for translation were in Indonesian, with "kind" being rendered with the Indonesian word *jenis*. Questioning of this sort was supplemented by observation of Nage speech.

- ¹⁰Cf. Gould (1983:363, cited in Lakoff 1987:120) who, in criticizing the cladistic approach to biological classification, states that "a ceolocanth looks like a fish, tastes like a fish, acts like a fish, and therefore...*is* a fish."
- ¹¹Nage also use Indonesian *sebangsa*, "of the same kind," when classifying an entity by reference to another, similar entity. In this respect, *bangsa* (nation, race, group, category, kind) functions identically to *macam* and *jenis* in referring indiscriminately to resemblance or inclusion.
- ¹²Especially in myth and formal speech, eastern Sumbanese pair animal names when designating a single kind. *Buti meo rumba*, monkey-wild cat, for example, refers simply to monkeys, and *ringu tanoma*, dugong-turtle, to dugongs (Forth 1988:221). Since the words for monkey and dugong both have other meanings, disambiguation may be a function here. I have yet to encounter any usage completely comparable to these among Nage, who tend to use biological pairings to denote more, rather than less, inclusive classes.

ACKNOWLEDGEMENTS

Information on Nage ethnobiology derives from more general ethnographic enquiries I conducted during several visits to Flores between 1984 and 1994. Initial fieldwork was sponsored by the Indonesian Institute of Sciences (LIPI), the National Institute of Cultural Research (LRKN), and Nusa Cendana University. At different times funding was provided by the British Academy and from grants awarded by the Central Research Fund of the University of Alberta and the Social Sciences and Humanities Research Council of Canada. I am grateful to all of these bodies for their support and assistance.

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